

**Our ref:** R/5224\_06\_Aberystwyth\_Harbour/JFO

Jack Thompson  
Natural Resources Wales  
Via Email

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21 February 2024

**FORMAL REQUEST FOR PRE-APPLICATION SAMPLING ADVICE FOR MAINTENANCE DREDGING AT ABERYSTWYTH HARBOUR.**  
**REF: SP2401**

Dear Jack,

1. With reference to your request dated 1 February 2024, for advice regarding pre-application sampling and analysis for maintenance dredging at the inner harbour and southern harbour areas within Aberystwyth Harbour, and disposal at a new disposal site at Tanybwllch Beach, please find the advice below and a sample plan form attached.
2. ABPmer provide advice to Natural Resource Wales (NRW) on sampling plans for marine licence applications to ensure that there is sufficient evidence on sediment quality to undertake an assessment of potential impacts on the marine environment prior to issuing a marine licence. This may include characterisation of dredge areas or of areas where other activities are likely to lead to the mobilisation of sediments. To enable ABPmer to provide that advice, and to fulfil the UK's obligations under International Conventions in respect of disposal at sea, and the requirements of the Marine and Coastal Access Act where applicable, sediment samples are required for analysis.

**Description of the Project**

3. Ceredigion County Council (CCC) currently hold a marine licence (DML2160) to dredge 2,000 m<sup>3</sup> of material within Aberystwyth Harbour using a combination of water injection dredging and a land-based mechanical excavator at low tide. The maximum dredge depth is 0.5 m. The marine licence also covers the disposal of this material at South Beach (IS013).
4. CCC are now proposing to increase the dredge area to cover the inner harbour and southern harbour area, and to increase the dredge volume to 10,000 m<sup>3</sup> per annum. It also proposes to create a new nourishment zone on the northern end of Tanybwllch Beach for the length of the car park, as well as retain use of the South Beach (IS013) licensed disposal site for the disposal of dredge material.
5. To inform the application for the existing marine licence (DML2160), two sediment samples were taken, one within the dredge area close to the inner harbour and one at the South Beach (IS013) disposal site. Particle size analysis (PSA) showed that the dredge area consisted primarily of gravel (i.e., more than 2 mm in diameter) accounting for around 60% of the sampled material. Due to the results of the PSA, no additional analysis was required.

## Sampling Required

6. In accordance with the recommendations of the OSPAR Guidelines for the Management of Dredged Material<sup>1</sup>, samples should be taken to provide a good representation of the volume of material to be dredged. The distribution and depth of sampling should reflect the size and depth of the area to be dredged, the amount to be dredged and the expected variability in the horizontal and vertical distribution of contaminants. We also use the OSPAR guidelines to inform our advice on sampling requirements for other activities which are likely to lead to the mobilisation of sediments. Based on the information submitted (as described above), the following sampling and analysis is required.
7. ABPmer advise that four samples in total will be required from across the dredge areas and disposal sites to provide adequate spatial coverage. It is advised that two samples are taken within the dredge areas (one sample from each of the two dredge areas). Whilst the guidelines set by OSPAR<sup>2</sup> recommend 3 samples for dredge volumes <25,000 m<sup>3</sup>, given the relatively small volumes proposed, it is considered that two sample stations will provide sufficient characterisation to support a marine licence application. It is also recommended that two samples are taken from the proposed disposal locations, to be analysed for particle size only, to ensure that material is of an appropriate composition; one sample should be taken from Tanybwllch Beach and one sample from South Beach (IS013). Whilst a sediment sample from the South Beach (IS013) disposal site was analysed relatively recently (October 2021), additional analysis is considered necessary due to any newly accreted sediment.
8. Samples must be taken at the surface (0 metres depth) as indicated on the sample plan form at **Annex 1**.
9. The following information must be included with any samples (irrespective of the laboratory to be used for analysis):
  - **Clearly** labelled samples
  - Completed sample position sheet, including the latitude and longitude (decimal degrees and the projection i.e., WGS84) of each location and if core samples are required the depth at which each sample is taken
  - Details of the method of sampling
  - A map/chart detailing the sample locations
10. Surface samples should be taken from the upper layer of in-situ sediment using a non-metallic / stainless steel scoop. To maintain the integrity of the samples please ensure that they are FROZEN and remain in the freezer until they can be dispatched. Please ensure the samples are dispatched in a cool box - the cool box should not be placed in any other packaging.
11. Samples should be kept until the licences have been issued in case any further testing is required.

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<sup>1</sup> <https://www.ospar.org/documents?d=34060>

<sup>2</sup> OSPAR guidance on number of samples required by quantity of dredged material (amount dredged (m<sup>3</sup>) [Number of sample sites]). Up to 25,000 m<sup>3</sup> [3] | 25,000–100,000 m<sup>3</sup> [4–6] | 100,000 – 500,000 m<sup>3</sup> [7–15] | 500,000 – 2,000,000 m<sup>3</sup> [16–30] | >2,000,000 m<sup>3</sup> [extra 10 per million m<sup>3</sup>].

## Analysis Required

12. Based on the existing data, it is recommended that PSA analysis be carried out to determine if the dredge area composition is consistent with the previous sample analyses, and to determine if the sediment is similar in nature to the material at the disposal sites. Chemical analysis of the material is not considered necessary, based on existing data, as the material was coarse in nature and therefore generally has less potential to be associated with contaminants. As such, it is not anticipated that the material would be contaminated.
13. If PSA results show the majority (>50%) of the sediment within the dredge areas to be fine sand and/or silt (i.e., below 250 µm), the following analyses will also be necessary for samples taken within the dredge areas:
  - Trace metals;
  - Organotins; and
  - Polycyclic aromatic hydrocarbons (including Total Hydrocarbon Content).
14. ABPmer do not consider it necessary to analyse samples for polychlorinated biphenyls (PCBs), polybrominated diphenyl ethers (PBDEs) or organochlorine pesticides (OCPs), as sources or activities that would indicate their presence within the surrounding area are not evident. However, their analysis may be required in future applications.
15. Further details can be found in **Annex 1 (Sample plan form)**.
16. It is recommended that the analysis is carried out following established specific dredge material testing methods. A list of laboratories which are approved for the suggested determinands is available at <https://naturalresources.wales/permits-and-permissions/marine-licensing/request-a-sampling-plan-for-a-dredge-or-disposal-marine-licence-application/?lang=en>. Any results following these methods would be acceptable to support a marine licence application to NRW.
17. To ensure consistency between laboratories it is expected that all analysis required will be undertaken from the same sample container. It is the applicant's responsibility to ensure that sufficient sample is collected, in a single container, for all the analysis required.

## Additional comments

18. NRW may wish to confirm whether the newly proposed beach nourishment site at Tanybwllch Beach is below mean high-water springs (MHWS), and, if so, whether it has been designated as a disposal site for beneficial use. To ensure accurate reporting of the beneficial use of dredged material, OSPAR recommend that beneficial use sites in the marine environment (i.e., below MHWS) be designated as disposal sites specifically for beneficial use.

## Conclusion

19. This advice is based solely on the information provided in the pre-application request, and the sampling and analysis described will be adequate to inform a licence application that mirrors the information in this pre-application request, providing that no further issues come to light and an application is submitted in a suitable timeframe. ABPmer will take a pragmatic approach to the requirement of repeat samples in relation to projects where works have not yet commenced, however, due to the dynamic nature of the marine environment and the potential for changes in the quantity and quality of sediments, there may be a need for some sediments to be re-sampled and analysed if the project has not commenced within two years of the time of sampling.

20. Where long term licences for maintenance dredging will be applied for, additional sampling and analysis may be required throughout the duration of the proposed licence term in order to comply with the OSPAR guidelines. Required sampling will be stipulated in any granted licence.
21. ABPmer reserves the right to request further sampling/analysis should any submitted marine licence application differ from that information submitted in this pre-application request. Any future application must clearly state this pre-application reference number.

Yours sincerely

A handwritten signature in cursive script, appearing to read 'J Oaten', written in a dark ink.

**Jamie Oaten**  
**Principal Environmental Consultant**

## Annex 1      Sample plan form

| Sample | Station                | Metals                              | Organotins                          | THC                                 | PAHs                                | PCBs                     | PDBEs                    | OCs                      | PSA                                 |
|--------|------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 1      | Inner Harbour – 0 m    | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2      | Southern Harbour – 0 m | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3      | South Beach – 0 m      | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 4      | Tanybwllch Beach – 0 m | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 5      |                        | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| 6      |                        | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| 7      |                        | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| 8      |                        | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| 9      |                        | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| 10     |                        | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| 11     |                        | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| 12     |                        | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| 13     |                        | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| 14     |                        | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| 15     |                        | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| 16     |                        | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| 17     |                        | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| 18     |                        | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| 19     |                        | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| 20     |                        | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |

### Comments:

Stations should be evenly distributed across and representative of the dredge area and beneficial use sites.

Contaminant analyses (i.e., testing for metals, organotins, THC and PAHs) will only be necessary if a majority of the sediment sample comprises fine sand and/or silt (i.e., >50% of sample is below 250 µm in diameter).